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# Public Health in the Emergency Department: Overcoming Barriers to Implementation and Dissemination

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## Abstract

This article is the outcome of a consensus building workshop entitled, "Overcoming Barriers to Implementation and Dissemination" convened at the 2009 *Academic Emergency Medicine* Consensus Conference, "Public Health in the ED: Surveillance, Screening, and Intervention." The participants were asked to address potential methods for overcoming barriers to the dissemination and implementation in the emergency department (ED) of evidenced-based practices to improve public health. The panel discussed three broad areas of interest including methods for disseminating evidence-based practices, barriers encountered during the process of implementation, and the importance of involvement in activities outside the ED including engagement in policy development and improvement. Four recommendations were discussed in detail and consensus was reached. The recommendations included 1) researchers and advocates should disseminate findings through multiple forums beyond peer-reviewed publications when an ED-based public health intervention has enough evidence to support integration into the routine practice of emergency care; 2) local barriers to implementation of public health interventions should be recognized and well understood from multiple perspectives prior to implementation; 3) innovation must be put into place and adapted based on local institutional context and culture as barriers and the best methods for overcoming them will vary across institutions; and 4) use of legislation, regulation, and incentives outside of the ED should support and strengthen ED-based interventions. For each area of interest, research dimensions to extend the current understanding of methods for effectively and efficiently implementing evidence-based public health interventions in the ED were discussed and consensus was achieved.

ACADEMIC EMERGENCY MEDICINE 2009; 16:1132–1137 © 2009 by the Society for Academic Emergency Medicine

**Keywords:** public health, interventions, emergency medicine, implementation, dissemination

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**E**mergency departments (EDs) are a critical piece of the nation's overall health care system—not just a safety net. In addition to providing care for individual patients with urgent and emergent conditions,

it has become increasingly important for EDs to engage in broader efforts to positively influence the health of the public. In nearly every case, there are individual, cultural, administrative, and systems barriers to dissemination,

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Received June 19, 2009; revision received July 24, 2009; accepted July 25, 2009.

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Dr Rhodes is supported in part by K23 MH64572.

This work is the output from a consensus workshop conducted during the May 2009 *AEM* Consensus Conference in New Orleans, LA: "Public Health in the ED: Surveillance, Screening, and Intervention."

The authors thank the following people who participated in our discussion at the consensus conference (alphabetical order): Sul-eman Ahmed, Betty Chang, Kit Delgado, Gary Green, Marna Greenberg, Toni Guess, Dave Holson, Brooke Hoots, Robin Ikeda, Chris Kahn, Judy Linclen, Joan M. Miller, Mary Murphy, Carla Pruden, and Kathryn Wells.

implementation, and ultimately integration of public health practices into routine ED care. The process for overcoming these barriers is best understood within the context of the microenvironment; however, similar tools and methods can be used to increase support at the macro level and best practices can be shared across institutions.

This article is the result of a breakout session conducted during the May 2009 *Academic Emergency Medicine* consensus conference, "Public Health in the ED: Surveillance, Screening, and Intervention." Session members were asked to discuss and address barriers to the dissemination of public health interventions in the ED, as well as obstacles to local implementation of new strategies. Issues related to funding (initial funding as well as ongoing support for sustainability) were not discussed, as another session was dedicated to those issues.<sup>1</sup> A set of recommendations and research questions was drafted prior to the meeting and then discussed at considerable length during the session. The final result is a consensus of the session participants.

A large percentage of presenting emergency conditions have their roots in adverse health behaviors (e.g., tobacco use, at-risk drinking, interpersonal violence, and obesity), and most underinsured ED patients have limited access to other sources of care. For these reasons, many emergency providers advocate for ED-based interventions that address a broader vision of public health and prevention—in addition to the usual process of diagnosis and urgent care for a patient's chief complaint that is classically considered "emergency medicine" (EM). In the ED, public health interventions are focused on the prevention of future disease (smoking cessation, influenza and pneumococcal vaccines) or injury (seat belts, helmets), the identification of and intervention for high-risk patients (screening for at-risk drinking, high-risk sexual behavior, or interpersonal violence), or the identification of disease or injury outbreaks in a community (syndromic surveillance). These interventions are aimed at improving the future health and well-being of the patient and the surrounding community outside of the ED (the health of the public). Because medical care must take precedence and ED resources are limited, there are many ED providers who simply do not believe that these interventions should occur in the context of the ED.

In addition to this initial attitudinal obstacle, there are cultural, administrative, educational, technological, and systems barriers to the implementation of any innovation in an ED. Overcoming these barriers and integrating an evidence-proven public health measure so that it becomes a routine part of emergency care requires disseminating the information, developing and then implementing a plan, evaluating the success of the initial attempt, and then modifying procedures and processes to create sustainability. Like any other innovation in health care, no solution is perfect, nor does it fit all settings. Although they may have significant benefits, all public health innovations in the ED have resource costs and the potential for both positive and negative unforeseen or unintended consequences.

## **RECOMMENDATION 1: RESEARCHERS AND ADVOCATES SHOULD DISSEMINATE FINDINGS THROUGH MULTIPLE FORUMS BEYOND PEER-REVIEWED PUBLICATIONS WHEN AN ED-BASED PUBLIC HEALTH INTERVENTION HAS ENOUGH EVIDENCE TO SUPPORT INTEGRATION INTO THE ROUTINE PRACTICE OF EMERGENCY CARE**

### **Discussion**

Defined by Webster's dictionary as "diffusion for propagation and permanence; a scattering or spreading abroad, as of ideas, beliefs, etc.,"<sup>2</sup> dissemination must come before implementation. Caregivers must know about an intervention and the evidence of its effectiveness before they can begin to incorporate it into routine care. In medicine, even straightforward practice changes with clear-cut benefits (such as eliminating a certain HIV medication from the treatment plan for pregnant patients because of teratogenic effects) are slow to become standard practice.<sup>3</sup> With ED-based public health interventions, it is crucial that both the data on effectiveness and the information on the process of implementation are disseminated. Otherwise, the "that's nice" response becomes too easy (e.g., "It's great they could do that and it worked in their environment but of course it would never work *here!*"). Given that most innovation requires an initial investment of resources on the part of both the department and the public health system, the beliefs about what constitutes EM must be addressed up front.

Support for a particular intervention develops over time. Over a period of years, a project moves from exploratory hypotheses to small-scale studies assessing a single outcome, to studies assessing multiple outcomes, multisite trials, systematic reviews, and meta-analyses. It is essential that this growing body of evidence is presented and discussed in multiple venues extending beyond peer-reviewed journals and that efficacy and effectiveness are explored in different types of EDs including urban, rural, community, and academic practices. While peer-reviewed articles can provide empirical support for a particular evidenced-based practice, they often do not address many practical problems of implementation or include sufficient detail for effectively and efficiently implementing these strategies.

### **Research Dimension**

1. What are effective methods of moving evidence-supported public health initiatives into clinical practice in the ED? Are different methods more effective in different centers (e.g., urban/rural or academic/community)?
2. What are the caveats to dissemination? When the science changes, what is the best way to disseminate new strategies while preventing liability problems?
3. How do we get the word out to those who do not necessarily buy into the topic?
4. Are there legislation and regulatory requirements that may help facilitate the dissemination of ED-based public health interventions?

### Evidence Summary

In addition to simply publishing study results, several methods have been used to disseminate information about effective prevention measures. These have included online and in-person training schema, reviews, and practice recommendations in “current practice” newsletters and a variety of continuing medical education modules. One of the most common methods is the use of guidelines from professional societies or national institutions. However, even when the guideline comes from a source as well known and trusted as the Centers for Disease Control and Prevention, and the issue is as simple as hand washing, successfully disseminating the information is not sufficient to change practice without a compliance component.<sup>4</sup>

Adjudicating bodies such as The Joint Commission, the Centers for Medicare and Medicaid Services, local health departments, and other certifying bodies may have a significant role in disseminating information on best practices. These regulating bodies can be very effective in disseminating information about a given intervention—often by requiring its use. A recent example is the American College of Surgeons (ACS) requiring screening and intervention for alcohol use disorders among trauma patients for verification of trauma center level. While the total effect of this requirement is yet to be measured, trauma centers are now required to demonstrate compliance to have the ACS verify their Level 1 or 2 status.<sup>5</sup>

The caveat to energetically focusing on dissemination is the problem of next year’s evidence—or how to update the intervention when better evidence becomes available. As a by-product of ongoing research, evidence-based treatments are dynamic and constantly being refined. In the same way, implementation of these strategies must be an ongoing activity that includes process evaluation and refinement of procedures. As a result, training in evidence-based procedures should be seen as an ongoing process rather than a single event. Perhaps the best example of this issue is the use of high-dose steroids for blunt spinal cord injury. Based primarily on treatment of one group of patients, high-dose methylprednisolone quickly became the standard of care for all blunt spinal cord patients.<sup>6</sup> Over the course of several years, further evidence suggested that while functional outcomes might be minimally improved, the risk of mortality increased significantly in patients when physicians used this protocol. In 2002, guidelines were changed to reflect the increase in risk associated with this treatment, encouraging more judicious use.<sup>7</sup> As we improve the process of dissemination of new interventions, we need to ensure equal emphasis on disseminating changes or improvements as new evidence becomes available.

### **RECOMMENDATION 2: LOCAL BARRIERS TO IMPLEMENTATION OF PUBLIC HEALTH INTERVENTIONS SHOULD BE RECOGNIZED AND WELL UNDERSTOOD FROM MULTIPLE PERSPECTIVES PRIOR TO IMPLEMENTATION**

#### Discussion

To be successful, innovations must take into account the existing system even if the change requires a

paradigm shift. Careful attention must be paid to users’ baseline knowledge, attitudes, and perceptions, as well as the local technological and administrative structures, and processes within the specific setting. Only then can ED-based public health intervention planners hope to anticipate supportive and negative behaviors and address them proactively. Throughout the process it is helpful to identify advocates for the implementation of the public health strategy. These advocates may represent multiple disciplines and include clinical and administrative staff as well as knowledgeable members of the community. Including a variety of stakeholders before introducing a new intervention can improve buy-in and also ensure more comprehensive understanding of the obstacles ahead.

### Research Dimension

1. When implementing a new intervention locally, what is the best way to identify potential barriers?
2. What are the common local barriers to implementation of public health interventions given the variety of work environments that exist?
3. Who are the key stakeholders and what local outcomes are most important to them?

### Evidence Summary

To date, a paucity of literature exists about successful strategies for integrating and implementing ED-based public health interventions. While a multitude of potential barriers to such programs exist (end-user attitude, resources, process, system structure, limited knowledge base, lack of a champion), none should be addressed in isolation from their respective cultural and contextual setting. As a result, there is a need to intentionally develop strategies and models to assist in the identification of barriers at both the individual and the system levels. Corporate models abound, many based on Lewin’s Change Theory: three stages of unfreeze, change, and refreeze, which seeks in addition to elucidate barriers to each stage.<sup>8</sup> A recent review of corporate models suggests that there may be two basic approaches: 1) episodic change, which occurs and then ends, and may create broad paradigm shifts but appears to require a “change agent” or champion, and 2) continuous change, where small changes in work processes accumulate slowly over time.<sup>9</sup> Both of these approaches may help guide the successful translation of evidenced-based practices to promote public health in the ED. In medicine, conceptual models of the implementation process, as described by Fixsen and colleagues<sup>10</sup> or Simpson,<sup>11</sup> may provide more “medicine-specific” insight into processes that may translate to the ED.

Beyond the individual-level challenges, there is a need to comprehensively identify local stakeholders who might be valuable in informing and planning the process and structural development of a program. A priori understanding the stakeholders’ most desired measures and outcomes could ultimately result in increasing a program’s capacity and overall probability of long-term sustainability. Furthermore, while identifying key metrics that are important to program stakeholders and system administrators, it is important that

the identified metrics and outcomes are those that can also help objectively define program progress and success (e.g., ED length of stay, relative value units, patient outcomes, cost, and cost/benefit issues).

Finally, planning and implementation of most programs requires a significant amount of time and effort to identify and address barriers, including reevaluating and readdressing, until full integration has been achieved. It has been suggested that financial incentives alone may help provide a quicker and more palatable answer to changing the behavior of medical caregivers.<sup>12</sup> However, to date little detail is known of the process by which financial incentives (small, large, immediate, or delayed) to emergency physicians, nurses, and ED staff help overcome barriers in ED-based public health interventions. This requires further investigation.

There is considerable need to develop models that both identify and effectively deal with barriers to implementation of ED-based public health programs in their respective culture and context. Qualitative (in-depth interviews, focus groups) and quantitative research and evaluation methods should be employed to uncover optimal strategies to understand and utilize contextual information for program success and maintenance.

Our workshop discussions highlighted the need to be inclusive in the preprogram planning process to identify and call on the assistance of obvious and less obvious stakeholders in the ED setting. Further, workshop participants firmly recommended the need to maintain flexibility in program implementation. Moreover, they noted that unintended events would affect program implementation efforts, but that continuous formative and summative evaluation was necessary for both process and outcome success.

### **RECOMMENDATION 3: INNOVATION MUST BE PUT INTO PLACE AND ADAPTED BASED ON LOCAL INSTITUTIONAL CONTEXT AND CULTURE. BARRIERS AND THE BEST METHODS FOR OVERCOMING THEM WILL VARY ACROSS INSTITUTIONS**

#### **Discussion**

While barriers to public health innovations in the ED appear to be very similar in many ED settings, methods of overcoming these barriers are usually best solved on a local level. Every ED works differently and has its own organizational culture, procedures, records systems, and constraints. So while the goals may be the same, the process of implementing these goals can vary widely from one setting to another. In fact, the process of dissemination and adoption of innovation is a science in its own right. Nevertheless, one strategy for overcoming local barriers is to identify other internal or external programs that have successfully implemented any given strategy. There are often multiple methods for obtaining the same ends, and a thorough understanding of the strengths and limitations of each may help the success of the program.

#### **Research Dimension**

1. What are the most common barriers to implementing public health interventions in the ED setting?
2. What are some effective methods of overcoming common barriers in a variety of work situations?
3. What is the best way to use local data (before and during integration) to motivate and facilitate the integration of the public health intervention?
4. What feedback and incentive system best supports adoption and maintenance of the intervention by providers and by administrators?

#### **Evidence Summary**

Systems theory and findings from dissemination research indicate that it is not possible to predict how a system will optimize a given innovation design. The most successful adoption of innovation seems to occur in settings with fewer regulations, boundaries, and dominating policies.<sup>13,14</sup> Incentives and resource allocation may need to be modified to engage all constituencies; however, precisely what system modifications will occur and how the complex organizational system will adapt innovation will emerge through the reinvention, implementation, and dissemination processes.

Everett Rogers' 1995 compilation of innovation case studies and research findings provides a roadmap to study the diffusion paradigm.<sup>15</sup> According to Rogers, innovations are more readily adopted when they provide a relative advantage compared to old ideas, they are compatible with the existing value system of the adopter, the innovation is readily understood by the adopters (less complexity), the innovation may be experienced on a limited basis (more trialability), and the results of the innovation are more easily noticed by other potential adopters (observability).<sup>15</sup>

The system's structure and local norms can influence the rate of diffusion. This later issue is also emphasized by Denis et al.<sup>16</sup> who discuss the dynamic nature of the adoption and diffusion process as an interaction between innovation and "key actors" (many with their own economic and personal interests) in an adopting system. Berwick<sup>14</sup> builds on Rogers' work to make seven recommendations for health care executives who want to accelerate the rate of diffusion in their organizations. These recommendations can be summarized as find good (effective) innovations, identify and support innovators, invest in "early adopters," make early adopter activity easily observable, encourage and trust the process of "reinvention," create the "slack" (time and energy) needed for change, and lead by example. Rogers also notes that some innovations are "linked synergistically."<sup>15</sup>

The implication is that when a public health innovation is otherwise compatible with the needs and values of the organization, there may be opportunities to include new public health innovations. These can occur when making other departmental physical or systems changes, such as renovation or introduction of a new electronic health record system.

There is not yet much work applying dissemination science to the ED setting. Discussion at the workshop focused on how to motivate innovation and facilitate the integration of public health interventions through the use of local data from your own ED setting. It was generally agreed that supportive leadership was the key



to successful adoption of new public health innovations and that integrating public health into EM operations requires prolonged commitment and persistence, support, and “buy in” from both above and below. Change needs a strong champion, preferably a physician, or even better the ED director.

It was also agreed that once in use, some sort of accountability, especially evaluation and feedback to individual providers and the department as a whole, is a critical component of integrating public health interventions into routine care. There also was agreement that for maximum effectiveness, it is best to set up the system to make it easy for providers to “do the right thing.” System changes that take the busy provider out of the path of having to provide public health interventions and make certain that there are appropriately trained personnel dedicated to the job (e.g., nurses, social workers, advocates) are likely to be far more successful and sustainable. Moreover, increased use of information technology such as automated referrals and standard order sets designed for improving public health will greatly facilitate the successful integration of public health interventions.

#### **RECOMMENDATION 4: USE OF LEGISLATION, REGULATION, AND INCENTIVES OUTSIDE OF THE ED SHOULD SUPPORT AND STRENGTHEN ED-BASED INTERVENTIONS**

##### **Discussion**

While local measures can support the integration of ED interventions, actually getting patients to change their behavior requires persistent and consistent message delivery from a variety of sources. Interim consequences based on legislation or regulation can facilitate change where ED-based instruction or motivational interviewing cannot. For example, legislation requiring seat belt use and the perceived certainty of enforcement significantly reinforces the ED physician’s comment, “You probably wouldn’t need stitches on your chin if you had been wearing a seat belt.” Similarly, if The Joint Commission required that all ED patients seen between October and March in the United States had evidence of being offered an influenza vaccine, the rate of vaccination would likely rise.

There are times when the best solution to a public health problem lies outside the doors of the ED. Instead of spending time speaking to individual patients, the most effective solution may be for emergency physicians to engage in focused dialogue with legislators, administrators, or regulators. Consensus conference participants agreed that purposefully participating in this activity is important for emergency physicians interested in addressing public health issues.

##### **Research Dimension**

1. How can EM providers best contribute to meeting public health goals?
2. How can emergency physicians be more effective at implementing public health interventions via legislation or regulation?
3. What are effective actions for emergency physicians to make in addressing reimbursement and pay for performance that might help facilitate public health intervention implementation?

##### **Evidence Summary**

For decades, emergency physicians have supported the health of the public by actively participating in the development of health policy. This has included involvement in legislative activities at the state level including supporting injury control policies (seat belts, motorcycle helmets, drunk driving limits) and the development of local and regional prehospital care and triage systems. Nationally, emergency physicians have participated in the process of ensuring professional compensation for public health interventions such as screening and brief intervention for alcohol use disorders. While emergency physicians may feel put upon by regulations such as the recent mandate around timing of antibiotics for pneumonia, the potential for supporting ED-based interventions through legislation, regulation, and policy should not be ignored.

While anecdotal stories of highly successful (and less than successful) EM provider participation in legislative and regulatory policy discussion abound, best practice strategies to overcome barriers and optimize program effectiveness in this arena have not been well studied. There may be other, more effective ways for us to participate in community, city, state, and national affairs that we have yet to recognize. Our best collaborators are likely to differ depending on the specific subject; the support for a program aimed at intimate partner violence is very different from support of a program to support improved adjudication of drunk drivers treated in the ED. The first might involve collaborating with local domestic violence and police agencies, the latter working with policy makers to create a mechanism that better enables us to share driving under the influence (DUI) information across state lines. We need to develop better communication strategies and incorporate advocacy outside the ED into the process of integrating public health interventions inside the ED to best accomplish our long-term goals.

##### **SUMMARY**

Overcoming barriers to implementation and dissemination of public health interventions in the ED has many similarities with dissemination and implementation of innovation in other venues. Workshop participants agreed on both the need to recognize and the study overarching themes, while remaining flexible to the local culture and microenvironment in implementing a new ED-based public health program in a specific site. Finally, consensus was reached on the need for emergency physicians concerned with the health of the public to think outside the ED box and participate at the regional, state, and federal levels to create policy supports for much needed public health interventions.

The authors thank Alexis Lieser, MD, who acted as the scribe during our discussion. Her help was crucial to the completion of this manuscript.

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